

PRODUCTS

Inlaid: Fine Fields® / Magna®

Homogenous Inlaid: BioSpec® MD

Heterogeneous Light: Insight® Plus

Slip-Retardant Sheet: Mannington Assurance® II

ROLL WIDTHS

PRODUCT	CONSTRUCTION	ROLL WIDTH	Maximum MVER
Fine Fields®, Magna®	Inlaid	6' wide rolls only	5 lbs 80% RH
BioSpec® MD	Homogeneous Inlaid	6' wide rolls only	3 lbs 75% RH with M-Guard V-88 adhesive 8lbs 90% RH
Insight® Plus	Heterogeneous Light	12' wide rolls only	5 lbs 80% RH
Mannington Assurance® II	Slip-Retardant Sheet	6' wide rolls only	3 lbs 75% RH with M-Guard V-88 adhesive 8lbs 90% RH

Because Mannington Commercial Resilient Sheet Flooring products are intended for use in a wide range of applications, underfloor selection and preparation are especially important. In most cases, remove all existing floor coverings before installing these commercial products. (You must strictly follow all federal, state, and local regulations regarding the removal of existing flooring.) Furthermore, all concrete under floors must be tested for moisture before starting the installation. Mannington requires that the concrete be tested for moisture using either the anhydrous calcium chloride test following ASTM F 1869 procedures and or the in-situ relative humidity test following ASTM F 2170. Maximum permissible MVER are determined by product construction and adhesive type (see chart above).

NOTE: While either of these industry accepted moisture testing methods may be used, the results are not exchangeable, if both tests are performed they must both be in the acceptable range to be considered valid.

HANDLING PROCEDURES

It is imperative to maintain the material, adhesive, and job site at a minimum temperature of 65°F and a maximum temperature of 85°F for 48 hours before, during, and after the installation. If the material has been stored at colder temperatures, it will need to be unrolled and allowed to relax overnight before proceeding with the installation.

NOTE: If the flooring contractor elects to install new floor covering over an existing floor covering, the flooring contractor assumes all responsibility as to the suitability and continued performance of the existing floor covering. If removal of existing resilient floor covering is required, follow all recommended Resilient Covering Flooring Institute (RFCI) work practices at www.rfci.com. Please be aware that installing these products over existing flooring may reduce their excellent indentation resistance. These products may also be installed over properly prepared and approved wood panel or wood composition panel underlayments on wood subfloor systems.

WARNING: Do not sand, dry sweep, dry scrape, drill, saw, beadblast, or mechanically chip or pulverize existing resilient flooring, backing, lining felt, paint, asphaltic "cutback" adhesives, or other adhesives. These products may contain asbestos fibers or crystalline silica. Avoid creating dust. Inhalation of such dust is a cancer and respiratory tract hazard. Smoking by individuals exposed to asbestos fibers greatly increases the risk of serious bodily harm. Unless positively certain that the product is a non-asbestos-containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content. The Resilient Floor Covering Institute (RFCI) document "Recommended Work Practices for Removal of Resilient Floor Coverings" should be consulted for a defined set of instructions addressed to the task of removing all resilient floor covering structures. For more information visit the Resilient Floor Covering Institute at www.rfci.com.

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PATCHING & LEVELING COMPOUNDS

We recommend the use of latex / Portland cement trowelable underlayments or self-leveling cementitious products for repairing or leveling concrete subfloors. Sand and fill approved underlayment panel joints using a latex / Portland cement compound. Do not use gypsum or mineralbased patching compounds in commercial applications under any circumstances.

CUTTING & FITTING

Mannington Commercial inlaid products are flexible and will handle easily when cutting and fitting. This product characteristic enables the installer to fit the material using freehand knifing techniques.

- If the job site is complex and requires a precise fit, use pattern-scribing techniques.
- The material may also be fit using direct scribing techniques.
- Once the material has been fit, it is necessary to tube or lap back half of the sheet to expose the underfloor for adhesive application.
- Take care when folding the material back. Always fold the material in a wide radius to avoid sharp kinks and creases, which may cause breaks in the product.

APPLYING ADHESIVE

- Fully adhere Mannington Commercial resilient sheet flooring to an approved underfloor.
- After you have trimmed the material to fit the room, tube or lap it back to expose the underfloor. Apply adhesive with the recommended notched trowels found in the adhesive label.
- Spread adhesive over 100% of the exposed subfloor, leaving no gaps or puddles.
- Maintain uniform coverage by keeping the trowel clean and properly notched.
- In most cases it is advisable to give the adhesive sufficient open time. Open time allows the moisture to flash off the adhesive, permitting the adhesive to develop more body and immediate tack. Open time is always determined by subfloor porosity and atmospheric conditions. Be certain to provide ample open time on non-porous subfloors and at seam lines.
- After the adhesive has begun to tack-up, roll the sheet forward into the adhesive to avoid trapping air. Do not drop or flop the material into the adhesive. Roll the floor covering with a three-section, 100 lb (or heavier) floor roller in both directions.
- After the first half of the sheet has been adhered and rolled, fold back the second half and repeat the procedure.

Important note: Mannington adhesives are specifically formulated to be fully compatible with our product chemistry and to maximize the performance of Mannington flooring. Using substitutes or failing to use Mannington adhesives as recommended can cut-short product life, cause installation failure, and/or lead to a chemical reaction, such as hydrolysis, which will permanently damage the product and **will void all applicable warranty coverage**.

CAUTIONS:

- When providing open time, do not permit the adhesive to "skin over" or dry. Too much open time will result in insufficient bonding.
- Use V-82 adhesive over porous substrates. Use V-95 adhesive over non-porous substrates. M-Guard V-88 may be used over both porous and non-porous subfloors.
- V-95 adhesive has low initial tack. It may be necessary to apply weights to the floor covering, especially in the seam area, until the adhesive sets. When using V-95 adhesive, roll the adhered flooring with a 100 lb (or heavier) roller within one hour after the flooring is installed.
- V-95 must be used over non-porous substrates, under hospital beds, operating room tables, heavy rolling loads, areas subject to standing water, topical moisture or where high performance is needed.
- Wait one to two hours and re-roll the flooring again to ensure full contact has been achieved. Re-rolling the material will also help remove any trapped air bubbles.

NOTE: Mannington's V-88 adhesive is an option in areas where a high moisture adhesive is needed. When installing homogeneous sheet vinyl with V-88 adhesive it is recommended to trowel the adhesive then back roll with a short-nap paint roller to minimize the possibility of trowel ridge telegraphing. V-88 can only be used in permanent, full spread installation method.

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SEAM CUTTING AND SEAM SEALING

PRODUCTS	METHOD TO USE
Insight® Plus	Traditional Double-cutting method
Magna®, Fine Fields®, BioSpec® MD, and Mannington Assurance® II	Recess Scribing method

DOUBLE-CUTTING SEAMS

1. If required to seam Insight® Plus products, provide additional length on the second and succeeding sheets to allow for proper pattern alignment.
2. Position Insight® Plus floors using the "Reverse" or "Do not Reverse" method.
3. To minimize pattern run-out, the floor covering should always be laid out minimizing the length of the seams.
4. Cut material to the appropriate sizes the day before the actual installation.
5. Store the material at recommended temperatures.
6. Roll these cuts tightly, face-out around a core, maintaining as equal a diameter as possible.
7. Cut and install the pieces in sequential order. If the job requires more than one roll of floor covering, make sure all rolls are marked with the same shade letter and that the roll serial numbers are in consecutive order.
8. After aligning the pattern and providing adequate overlap, adhere the sheets of material up to the predestinated dry zone.
9. Cut the seam using a utility knife with a new, sharp blade. Using a steel straightedge, cut through both sheets of flooring at a 90° angle to the floor covering.
10. Once you have cut the seam, remove the selvage and fold back the sheets to expose the dry zone.
11. Apply adhesive with a properly notched trowel across the dry zone.
12. Allow the adhesive to develop tack and lay the sheet that was on the bottom during the cutting process into the adhesive first.
13. Then place the top sheet into the adhesive; avoid scraping adhesive into the cut. Roll the area with the three-section floor roller.
14. Bring seam edges level with the use of a hand seam roller.
15. Thoroughly clean the seam area and wipe dry with a damp cloth.

SEALING SEAMS

Insight Plus®

- Before sealing the seams, make certain all seams are clean, dry and free of adhesive contamination.
- Part B, which contains the de-glossing agent, must be shaken vigorously before blending with Part A.
- Empty entire contents of Part A and B into the supplied applicator bottle after securing the VST Tip to the application bottle; gently shake the bottle to mix the ingredients.
- After mixing, the bottle should stand until all trapped air bubbles has dispersed, typically 15 minutes.
- Before using, check the flow through the applicator on a scrap piece of flooring.
- Insert the fin into the seam cut and lightly squeeze the bottle to apply a uniform bead of sealer approximately 1/8" wide, centered on the seam cut. It is crucial that the seam sealer penetrates the full thickness of the seam cut to insure proper chemical bond.
- Do not wipe the sealer from the surface of the flooring.

RECESS SCRIBING SEAMS FOR INLAID CONSTRUCTION

Mannington Assurance® II, BioSpec® MD, Fine Fields®, Magna®

- When seaming is required with Magna®, Fine Fields®, BioSpec® MD, and Mannington Assurance® II, position the materials as "Reverse Sheets." This requires positioning similar sides of the sheet together.
- Cut the selvage edge of one sheet using a straightedge and a utility knife or edge trimmer. Trim off about 3/8" from the edge. Trimming is necessary since 6' rolls are typically stored on-end causing compression on one edge. Or the rolls might even be damaged during transport.
- Position the sheets in such a manner that the top sheet will overlap the previously straightened sheet by approximately 1/2".

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- Fold back the sheets to expose the underfloor and apply the appropriate adhesive. Place the trimmed sheet into the adhesive while providing sufficient overlap of the second sheet; then lay in the second sheet.
- Roll the adhered areas to within 6" of the seam line with a 100 lb three-section floor roller.
- Adjust the recess scribe before actually cutting the seam by cutting a slit in a scrap piece of resilient flooring material. Insert the button on one edge of the slit. The needle should just touch the opposite side of the slit. Make sure to set the scribe to produce a net fit, neither gapped nor too full.
- Using a recess-scribing tool, insert the scribe against the straightedge piece of resilient. Use the bottom end of the tool, the guide, to follow the bottom sheet and lightly score the top sheet with the needle of the scribing tool. Keep the scribing tool perpendicular to the seam when scribing.
- Cut the seam net with a utility knife (straight or hook blade). Cut the seam by following the scribed mark. A burr may be created on the seam in the needle of the scribe is set too deep or too much pressure is applied. Remove any burrs by placing the seam with the back of a hook knife.

CAUTION: If the scribe is pulled too tightly against the bottom sheet, the seam will be too full and have the potential to peak.

- After scribing and cutting the seam, roll the seam area with a hand seam roller to bring the seam edges level. Re-roll the entire adhered area with the 100 lb floor roller. Thoroughly clean the seam area and wipe dry with a damp cloth. For dried adhesive use mineral spirits on cloth.

RECOMMENDED SEAMING METHODS - CHEMICAL OR HEAT WELDED SEAMS

PRODUCT	CHEMICALLY WELDED	HEAT WELDED
Mannington Assurance® II BioSpec® MD	Recommended	Recommended-preferred method
Fine Fields® Magna®	Recommended	Recommended-preferred method
Insight® Plus	Recommended	Not Recommended

Mannington Assurance® II

- To utilize a chemical seam sealing method for Mannington Assurance® II, the flooring must be installed full spread using appropriate adhesive. Use V-95 centered at the seam location in a 4-6" wide band.
- After installing the flooring, apply a narrow bead of MLG-33 seam sealer using the applicator with the fin up.
- Do not insert the fin into the seam.
- Be sure that the sealer is in contact with both sides of the flooring.
- Leave this bead of sealer on top of the flooring.
- Do not wipe the seam.
- Allow 24 hours for the sealer to set up before allowing foot traffic or moving furniture / appliances across seamed area.

CHEMICAL SEAM SEALING

Magna®, Fine Fields®, BioSpec® MD

- Thoroughly clean the seam of all adhesives, dirt, etc, before sealing it.
- If the seams are to be chemically welded, use Mannington Commercial MCS 42 Seam Sealer.
- When inserting the applicator tip into the seam cut, it is crucial that the seam sealer be applied to the full depth of the cut.
- Wipe off all sealer from the surface of the seam with a clean white cloth dampened with mineral spirits.
- Because the seam sealer should not be allowed to remain on the surface of the flooring more than 30 or 40 seconds, it is recommended 5 or 6 lineal feet of seam be sealed and then wiped clean. Be certain to overlap each application of seam sealer.

HEAT WELDING

Heat welding is the act of fusing resilient sheets together with a heated thermal vinyl weld rod. This technique is suitable for installing the following Mannington Commercial resilient sheet flooring products: Fine Fields®, BioSpec® MD, Magna®, and Mannington Assurance® II.

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NOTE: Never use heat welding on Mannington resilient products, Insight® Plus or Insight® Plus GB.

NOTE: Heat welding is the preferred method of sealing seams for homogeneous products.

WELD RODS

Mannington's weld rod is available on spools and is designed to fit the most popular heat welding guns. Mannington offers a broad range of solid rod colors to coordinate with all of our heat-weldable flooring.

HEAT WELDING RECOMMENDATIONS

- To achieve good sealing results, knowledge of proper heat welding procedures is important.
- A repeated stop / start method will produce rough uneven seams, creating an unpleasant appearance.
- Temperature setting is critical to the success of any heat welding application. If the welding gun is set too hot or applied too slowly, the flooring is likely to burn, char, or craze the surface next to the weld rod. If welding gun is not hot enough or applied too quickly, the weld may have poor fusion.
- After waiting 24 hours for the adhesive to dry, use a power-grooving machine or hand groover to cut a groove the entire length of the seam. Adjust the machine so the depth of the groove is about two thirds of the product's thickness. Never go all of the way through material. Maintain a 3 sided weld (2 sides and bottom). Stop machine grooving several inches away from the wall.
- Extend the groove to the wall using a hand-grooving tool.
- Prior to heat welding, allow the flooring adhesive 24 hours to completely dry. Preheat welding gun and determine proper temperature setting and router depth by practicing on scrap pieces of flooring. Make certain the speed nozzle is clean and free of obstructions.
- Use a 4mm round narrow pre-heat speed nozzle (tip) designed for welding urethane finish flooring.
- Insert welding rod into the speed nozzle allowing approximately 3" to extend out. Arrange welding rod in such a manner that it will not interfere with the application. Be careful when inserting the welding rod because the nozzle is extremely hot.
- Pull the gun along the length of the seam toward your body while maintaining a downward pressure. Keep the gun perpendicular to the floor. Weld the seam at a constant, even speed.
- Stop and change direction of the weld when you are near the back wall. Pull the gun out of the groove and cut the weld rod.
- Remove the urethane coating before heat welding inside corner by grooving or sanding. Performed metal corner caps may also be used.
- Allow welded rod to cool, and then groove the installed rod with a hand-grooving tool. Grooving the rod makes it possible to achieve complete seam coverage when you start seaming from the opposite direction to finish the job.
- Reposition yourself and your tools at the back wall and continue welding into the grooved rod you just made so there are no missed spots in the seam. It is important to achieve a smooth, continuous coverage of the rod into the seam.
- After the welded rod shrinks and cools for approximately 30 minutes, trim down the excess by using the following two steps: Remove approximately two thirds of the exposed welded rod. Use a spatula trim knife and trim plate to trim off the top layer. There should be about 1/32" excess weld rod projected above the surface of the resilient.

CAUTION: When trimming weld rods on Mannington Assurance® II, do not allow weld rod to cool. Skive off warm.

- The second step is to trim the welded rod level until it is flush with the surface of the resilient sheet. Use an extremely sharp spatula knife without the trim plate at a 5° to 10° angle to the floor surface. Keep the sharpened side down against the welded rod. Be careful not to cut or dig into the resilient surface. Inspect the finished seam carefully and remove any missed high spots with a spatula knife. If there are low spots, the seam weld may require a rod reapplication.
- Once the entire area has been trimmed and inspected, smooth out seam with one of the two recommended methods.
 1. Glaze Curing the Seam: Apply heat from the welding tool by removing speed nozzle and using the same heat setting to direct a flow of heat from the gun along the length of the seam.
 2. Seam Sealing the Seam: To smooth out the seam, apply MCS 42 seam sealer to the welded seam and leave it on no longer than 30 to 40 seconds. Wipe all sealer from the surface of the seam with a clean white cloth dampened with mineral spirits. Allow the sealer to be absorbed into the rod. Both of these two last steps reduce porosity of the trimmed rod and glaze the surface of the welded rod to produce a smooth, continuous appearance.
 3. When the delayed maintenance procedure is used the glazed weld rod should be protected by applying a uniform coating from QGHP marker. This antimicrobial , protective coating will keep the seam area clean.

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SEAM COATER PEN

The Quantum Guard HP Pen is a quick and easy way to provide topical protection to heat welded and chemically welded seams in Mannington Commercial sheet vinyl products that have the patented high performance urethane Quantum Guard HP wearlayer. Before use shake vigorously to blend the ingredients, remove the cap, daub the felt tip marker a few times to begin the flow of the floor finish and then coat over the seam area with a **thin**, even application. In high traffic areas it is a good practice to apply two or even three coats of finish from the Quantum Guard pen. Just be certain that the finish is thoroughly dry before applying additional coats. Each Pen will cover approximately 300 lineal feet of seam. The Quantum Guard HP Pen coating is not intended to provide additional seam strength or integrity. It is a "coating" that helps retain seam appearance initially and when in service.

FINISHING & MAINTENANCE

- Protect all exposed edges of floor covering with trim or restrictive moldings.
- Remove all scraps and trash from the jobsite.
- Remove all adhesive smears or residue from the surface of the floor covering with a clean cloth dampened with mineral spirits.
- After 24 hours of the completed installation, thoroughly clean the floor.

REPAIRS

Replacing Damaged Areas

- If possible, the floor covering repair piece should come from the original installation. Typically, consumers retain leftover pieces from the original installation or attic stock.
- Tape the repair piece over the damaged area and double-cut using a steel square as a guide.
- Remove the damaged area and scrape the subfloor clean. Apply adhesive on the back of the repair piece and insert into the flooring.
- Roll the repair piece with a hand seam roller.
- Use the appropriate Mannington seam sealer to seal all cuts.

FLASH COVING RESILIENT SHEET PRODUCTS

All Mannington resilient sheet goods can be installed using the flash coving method. This edging technique, often preferred by hospitals and other health care facilities, is a process of extending the resilient flooring up the wall to create a wall base. Normally, the floor covering is extended up the wall to a height of 4" to 6". Coving is popular with end users because it eliminates the need for a floor/wall juncture and it is also easy to maintain.

As with all resilient installations, proper preparation of the work area is critical to the success of the installation. Clean the underfloor carefully and make certain it is structurally sound.

The juncture of the floor and wall also needs special preparation before beginning a coved installation. Follow the instructions below to install the cove cap and the cove stick (cove fillet strip).

- Measure desired height for the cove caps at each corner and strike a chalk line.
- Attach aluminum or vinyl cove caps at this height using flathead nails with a hammer or brad pusher, or use contact cement.
- Always miter inside and outside corners in the cap. When mitering the outside corners, file the ends of the cap smooth. Use a specially designed miter tool with interchangeable die sets to make corners on the cove cap. This tool eliminates sharp edges at the outside corners.
- Cove sticks support the resilient flooring as it is flashed up the wall, eliminating the chance of puncturing the resilient flooring. Firmly secure plastic or wood cove sticks where the floor meets the wall with adhesive or nails.
- Use nonstaining nails and set the flush with the stick. The stick should have a minimum radius of 1 1/8" and be precisely mitered at all inside and outside corners.
- Provide a smooth transition in the door casings and other areas where the coving ends by cutting back to the cove stick.
- Tack the scribing felt to the wall with brad type nails before beginning to scribe it. Use a combination square, a small metal ruler, or a 1" piece of resilient to pattern scribe the felt.
- Fit the scribing tool up inside the cove cap and scribe the felt by sliding the tool along the cap as you mark the felt with a pencil.
- Scribe and cut the outside corners of the felt using a utility knife and the inside corners of the felt, using dividers.

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- After scribing the entire work area, position the pattern squarely on the resilient sheet flooring and transcribe the pattern with pencil dividers. Be careful when cutting the material on the inside and outside corners.
- Dry fit the material. Inside corners should fit snug, but not be forced into position. Make sure to always position the shorter side first and then the longer side.
- Gently pull material away from the wall. Apply the appropriate adhesive to the floor, wall, cove cap, and cove stick.
- Allow the appropriate amount of open time, determined by what adhesive is used. Fit the material back into place. Remember to always position the shorter side first.
- Roll the flooring with the appropriate size roller (use a hand roller on coved areas). Apply the appropriate seam sealer at all seams, following the recommended directions for the resilient floor being installed.
- The most demanding aspect of a coved installation is forming the outside corners. Fill outside corners with a "boot" type plug, rather than a V-type plug, on the least visible wall. The plugged corner fill piece should extend back at least several inches from the corner. The seam of the floor should be below the cove stick. Using an underscriber, scribe the back of the plug at the corner. This will mark the pattern of the corner on the plug.
- Cut along the scribed line at a 45° angle with a curved trim knife or a utility blade while holding the plug steady with a metal ruler and your other hand. When cutting, leave the face of the plug longer than the back.
- Check the fill piece for accurate fit. Make any minor adjustments to the plug as necessary to fill the space correctly. Remove the fitted fill piece and apply the appropriate adhesive. Reposition the fill piece and apply seam sealer.

NOTE: If planning to heat weld the seams, be aware that only Mannington Commercial Fine Fields, BioSpec MD, Mannington Assurance II, and Magna products can be used. Remove the urethane coating before heat welding each inside corner by grooving or sanding. Preformed metal corner caps may also be used.